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**Items for discussion and decision**

# *Handbook of Statistical Organization*

## Report of the Secretary-General

*Summary*

The present report was prepared in accordance with Economic and Social Council decision 2017/228 and past practices. The need for statistical organizations to adapt to the widening, increasing and evolving needs of data users, new data sources and the latest technological developments and develop was stressed in the Cape Town Global Action Plan for Sustainable Development Data and the final report of the series of conferences on a transformative agenda for official statistics. In the 2030 Agenda for Sustainable Development, Member States indicated that high-quality, timely and disaggregated statistics were needed to meet to new data needs and emerging challenges. The annex to the present report includes an outline for the fourth edition of the *Handbook of Statistical Organization* that contains comments on the strategic development areas relating to those initiatives, on the basis of consultations with chief statisticians and senior managers of statistical organizations.

Points for discussion by the Statistical Commission are contained in paragraph 25 of the report.

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# I. Introduction

1. The need for statistical organizations to adapt and develop was stressed in the Cape Town Global Action Plan for Sustainable Development Data (see E/CN.3/2017/3) and the final report of the series of conferences on a transformative agenda for official statistics (E/CN.3/2017/5), both of which were submitted to the Statistical Commission at its forty-eighth session (see E/CN.3/2017/35). The monitoring of the 2030 Agenda for Sustainable Development and related regional and national development policies requires national statistical systems to grasp the potential of innovative technologies in a rapidly changing data ecosystem while reinforcing leadership, coordination, communication and dialogue through institutional and organizational reforms, in compliance with the Fundamental Principles of Official Statistics, endorsed by the General Assembly in 2014. Modernization and transformation are crucial if official statistics are to meet the widening and increasing requirements of policymakers, researchers, the media and civil society for high-quality, timely and disaggregated statistics.

2. Considering those circumstances, the Statistical Commission agreed, at its forty-eighth session (see E/2017/24, decision 48/103), with the proposed update of the *Handbook of Statistical Organization* (the *Handbook*), the primary objective of which is to guide chief statisticians and senior managers of statistical organizations in developing and maintaining statistical capacity that is fit for purpose. The Commission required that the updated version of the *Handbook*, which was first published in 1954, and whose most recent (third) edition was issued in 2003, consider the strategic development areas proposed in the Cape Town Global Action Plan for Sustainable Development Data and the main outcomes of the series of conferences on a transformative agenda for official statistics, in particular, the following:

(a) Institutional and organizational frameworks securing resilience and the adaptability of official statistics;

(b) Communication, advocacy and multi-stakeholder partnerships for official statistics;

(c) Production processes and data sources for integrated production systems in official statistics;

(d) Information technology infrastructure to support data collection and the sharing, processing and dissemination of official statistics;

(e) Quality assurance framework and quality policy and management in official statistics;

(f) Capacity-building, training and resource mobilization in official statistics.

3. The process of updating the *Handbook* was divided into two segments. It was decided that, the first segment would involve developing an outline, with comments, for the next (fourth) edition of the *Handbook*, on the basis of a review of the third edition; consultation rounds would be held within the framework of the regional and subregional capacity-building workshops of the Statistics Division of the Department of Economic and Social Affairs of the Secretariat; and an online survey would be conducted among chief statisticians between September and October 2017. During the survey and consultation rounds, the focus was placed on the structure to be followed in the updated *Handbook*, major recent developments, the priorities to be reflected in the updated version and other issues, such as electronic dissemination versus paper publication and available languages.

4. In the second segment of the update process, scheduled for after March 2018, it was decided that the updated version would be drafted, using the outline and the outcome of the discussion and guidance provided by the Commission at its forty-ninth session.

5. The purpose of the present report is to provide the Commission, at its forty-ninth session, with points for discussion and guidance regarding the results of the first segment of the updating process, as follows: the factors shaping the update and the outcome of user consultations are set out in section II; a summary of the content of each chapter in the proposed new structure is set out in section III; and the proposed next steps of the update process are set out in section IV.

6. The annex to the present report contains an outline, with comments, of the proposed structure of the *Handbook*.

## II. Factors shaping the update of the *Handbook* and outcome of user consultations

7. Since the publication of the third edition, in 2003, there have been many developments in the organization and production of official statistics that should be addressed in an updated version. The outcome of the review and consultation rounds and the results of the survey conducted among chief statisticians revealed the need for the following:

(a) Increased focus on the implementation of the Fundamental Principles of Official Statistics, both within the national statistical offices and among other producers of official statistics within the national statistical systems;

(b) Increased focus on the national statistical system, not just the national statistical office, and the need for coordination among national statistical system members;

(c) Increased focus on the systematic reuse and exchange of data;

(d) Better understanding of technological developments that have significant implications for data collection, handling and dissemination;

(e) That producers of official statistics take into consideration new data needs at the national and international levels.

### Review of the target audience, structure and content of the third edition of the *Handbook*

8. A review of the third edition, aimed at identifying areas to be updated and improved and how to best adapt the structure and content to meet the new requirements, resulted in the following conclusions:

(a) The *Handbook* should not be designed as a narrative story, but rather as a checklist that a statistical agency should take into consideration. The chapters should be able to be read independently;

(b) The *Handbook* should provide clear and firm guidance, but not be prescriptive as the situation in each country is unique and only those in the country can determine the usefulness of the guidance;

(c) The *Handbook* should contribute to the harmonization and alignment of concurring definitions and terminology that have emerged recently through various, and sometimes uncoordinated, initiatives and programmes at the global and regional levels;

(d) Most of the chapters and sections, especially those relating to information technology, would have to be completely rewritten.

(e) The structure of the *Handbook*, namely, the division of the material into chapters and the sequence of the chapters, should be fundamentally revised to reflect the emerging topics and issues to be covered and the relevant international standard, as detailed below.

9. The primary target audience of the updated edition of the *Handbook* are chief statisticians and senior managers. With the revised approach, however, it will be possible to address a wider range of users and stakeholders at all levels within and outside the national statistical system. This will provide an opportunity to develop a mutual understanding of official statistics and a common statistical culture. Drafters of the new *Handbook* should also take into consideration the fact that national statistical offices vary greatly in terms of their size and development. As with the third edition, the approach is to present general principles that appear to have withstood the test of time, location, tradition and legal context and to illustrate them using national examples and practices.

## Accessibility, readability, usability and ease of the update

10. It became clear through the consultation process that the updated *Handbook* should be conceived as a living document available on the Internet; serve as a wiki-style resource that was easily accessible; include links to relevant material available on the Internet; invite a discussion of issues; and be able to be readily updated. To ensure an efficient structure, including with regard to using the links, it was proposed that a pilot chapter be drafted as a guide for developing the other chapters. The pilot chapter might also serve as an experiment in ways to search mechanisms, and keywords could be incorporated to facilitate the use of the updated *Handbook* as a toolkit for training purpose and for providing answers to different issues.

11. It was suggested that a procedure be put in place for the regular update of the *Handbook*, that each version of updates be marked clearly and that the frequency of the updates for each chapter be fixed, for instance, every second year. Furthermore, a decision should be taken with regard to which languages should be made available in the Internet version.

12. It was foreseen during the consultation process that a hard-copy version of the *Handbook* would be limited to the overview chapter (chapter II). The print version would be made available in all the official languages of the United Nations and would be aimed at policymakers and other stakeholders in addition to national statistical offices and other members of national statistical systems. It was also proposed that the other chapters, available exclusively online, be made print-friendly.

## Reference initiatives, guidelines and material

13. The updated *Handbook* will address common challenges, including those relating to the production and utilization of the indicators for monitoring progress

towards the Goals and targets of the 2030 Agenda, on the basis of institutional principles, managerial practices, and innovative production processes and technologies that have been acknowledged internationally and implemented successfully. The updated *Handbook* will, to the extent possible, rely on relevant global, regional and subregional initiatives such, as the deliverables and recommendations of the High-level Group for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda for Sustainable Development, the work of the High-level Group for the Modernisation of Official Statistics, the revision of the generic National Quality Assurance Framework and its guidelines and the review of the current implementation guidelines for the Fundamental Principles of Official Statistics.

14. Before starting with the drafting of the chapters of the *Handbook* according to the above-mentioned priorities, an inventory should be compiled, at the national, regional and global levels, of innovative initiatives, reference material and guidelines and country experiences, which should be duly reflected in the updated version.

## III. Proposed structure and content of the updated *Handbook*

15. It was suggested that the Generic Activity Model for Statistical Organizations (GAMSO)[1] be used as the overall architecture of the updated *Handbook*. To quote from its introductory sections, GAMSO describes and defines the activities that take place within a typical statistical organization. It extends and complements the Generic Statistical Business Process Model (GSBPM) by providing additional activities needed to support statistical production. It is aimed at providing a common vocabulary and framework to support international collaboration activities, in particular in the field of modernization. Nevertheless, as GAMSO is a relatively new standard that does not have the maturity of GSBPM,[2] it was proposed that it provide guidance in the choice of structure rather than being a standard that must be followed strictly.

16. GAMSO comprises three hierarchical levels. The top level includes four broad activity areas, three of which are further articulated at a second level, as follows:

(a) **Strategy and leadership.** This includes, at the second level: (i) defining vision; (ii) governing and leading; and (iii) managing strategic collaboration and cooperation;

(b) **Capability development.** This includes, at the second level: (i) planning capability improvement; (ii) developing capability improvement; (iii) monitoring capabilities; and iv) supporting a capability implementation plan;

(c) **Corporate support.** This includes, at the second level: (i) managing business and performance; (ii) managing finances; (iii) managing human resources; (iv) managing information technology; (v) managing statistical methodology; (vi) managing information and knowledge; (vii) managing consumers; (viii) managing data suppliers; (ix) managing buildings and physical space; and (x) managing quality;

(d) **Production.** This is in accordance with GSBPM.

[1] GAMSO was endorsed by the Conference of European Statisticians at it sixty-fifth plenary session (see ECE/CES/2017/11). See also: https://statswiki.unece.org/display/GAMSO/GAMSO+v1.1.

[2] GSBPM was endorsed by the Conference of European Statisticians at it sixty-fifth plenary session (see ECE/CES/2017/11). See also: https://statswiki.unece.org/display/GSBPM/GSBPM+v5.0.

17. The second levels were used as a starting point for the chapters of the *Handbook*, but were then significantly modified because GAMSO is a model for an individual national statistical office and the *Handbook* covers the entire national statistical system. The third level of GAMSO, which includes further description of the second level, has been used as a broad reference.

18. The resulting structure of the updated *Handbook* comprises 16 chapters. The first two chapters contain an outline of the objectives, intended audience and main themes of the *Handbook*. Chapter II provides an overview of the *Handbook* and is sufficiently comprehensive and self-contained to be printable as a small booklet. Chapters III to VI, cover the basis for official statistics, the national statistical system, the national statistical office and user needs. Chapters VIII to X cover statistical production, including data collection, processing, analysis and dissemination. Chapters VII and XI to XIV cover all aspects of the statistical infrastructure, including management of quality, human resources, information technology, data and metadata. Chapters XV and XVI provide a description of the management of the physical infrastructure and international activities and collaboration.

19. The annex to the present report contains a detailed outline of the chapters, sections and subsections of the updated *Handbook*.

20. During the consultation rounds conducted in the second half of 2017, the following priorities were suggested for the development of various chapters: chapter VII, quality management; chapter VIII, data sources, collection and processing; chapter IX, analysis and analytical frameworks; chapter X, dissemination and user communication; chapter XI, common statistical infrastructure; chapter XIII, data, information and knowledge management; and chapter XIV, information technology management. It was also proposed that the overview chapter, which has a broader target audience, would be drafted and made available only after the first versions of all the other chapters had been finished.

## IV. Next steps

21. The process of drafting the updated version of the *Handbook* will be undertaken in 2018 and 2019 by a drafting team with expertise in all major topics covered by the *Handbook* and according to the priorities and guidance provided by the Statistical Commission at its forty-ninth session. The team, consisting of consultants and led by the Statistics Division of the Department of Economic and Social Affairs of the Secretariat, could be complemented with experts from partner organizations and national statistical agencies, who would be mobilized to draft chapters that require specific experience and knowledge. During the drafting process, chief statisticians, senior managers of statistical organizations and other stakeholders will be consulted within the framework of activities organized through existing global, regional and subregional statistical programmes and capacity-building projects. The aim will be to ensure that there is ample opportunity for feedback during the drafting process.

22. An advisory group will be established with the task, at regular intervals or upon request, of providing overall guidance to the drafting team. It will comprise selected chief statisticians, ensuring a link with the High-level Group for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda for Sustainable Development and other relevant bodies, and a limited number of senior statisticians from regional commissions of the United Nations and multilateral development banks (memorandum of understanding group). It was suggested that the

advisory group not be too large, ideally consisting of not more than 12 members. The drafting team may also seek support and guidance from other bilateral and multilateral partner organizations outside the advisory group, if needed.

23. This approach will be complemented by a series of thematic conferences at the regional and subregional levels, if needed, at which senior statisticians may consider recent institutional, organizational and technical developments addressing prospective challenges and opportunities. The objective will be to assess whether there is enough insight and positive implementation feedback incorporated into the *Handbook*.

24. At its fiftieth session, the Statistical Commission will be informed of and consulted on the drafted chapters and the work in progress.

## V. Points for discussion

25. **The Commission is invited to:**

(a) **Comment on the proposed structure and content of the updated *Handbook* and express its views on chapters to be drafted as a priority;**

(b) **Express its views on the organization of the drafting procedure and consultation mechanisms;**

(c) **Comment on the proposal to put the updated *Handbook* on an interactive Internet platform, targeting chief statisticians and senior managers of statistical organizations, complemented by a hard-copy version of the overview chapter (chapter II), aimed at a broader audience within and outside the national statistical system.**

# Annex

## Proposed structure of the updated *Handbook*

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | | **Preface** | |
| | | | **Contents** | |
| | | | **Figures** | |
| | | | **Abbreviations** | |
| **I.** | | | **Introduction** | |
| | | | Chapter I covers the objectives, intended audience, structure and content of the *Handbook*. | |
| | A | | **Motivation for updating the *Handbook*** | • Changes since 2003, especially technology<br>• Current themes: transformation of national statistical offices, sustainable development |
| | B | | **Purpose, users and uses of *Handbook*** | • Target audience: chief statisticians, heads of other agencies producing statistics plus a wider range of users and stakeholders relating to official statistics<br>• Reference manual covering all aspects the activities under their direction<br>• For large and small national statistical offices<br>• For developed and developing countries |
| | C | | **Main topics discussed** | • General principles and policies<br>• Illustrated by examples<br>• Citing international standards and guidelines, wherever available |
| | D | | **Key concepts and terminology** | • National statistical office and national statistical system<br>• Official statistics |
| | E | | **Structure and content of *Handbook*** | • Stand-alone chapters linked to one another<br>• Live links to key reference documents with more details<br>• Loosely based on GAMSO<br>• Overview<br>• General outline of national statistical system and of national statistical office |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | | | • Main uses and users of statistics<br>• Sources, data acquisition and provider relations<br>• Processing and analysis<br>• Dissemination and user communications<br>• Common statistical infrastructure<br>• Human resources management, information management, information technology management<br>• International activities<br>• Quality management |

## II. Overview

Chapter II comprises a stand-alone summary of the major topics covered in the *Handbook*. The chapter will be available as a printed publication aimed at a broader audience within and outside the national statistical system.

## III. Basis of official statistics

Chapter III is aimed at providing a common basis for understanding what should be covered by the designation of official statistics as well as the principles and related legal provisions that may apply.

| | | | |
|---|---|---|---|
| A | | **Introduction** | |
| B | | **Fundamental principles** | • Description taken mainly from Fundamental Principles of Official Statistics (General Assembly resolution 68/261), implementation guidelines, with links to the guidelines provided<br>• Reference can also be made to the six principles of the human rights-based approach to data from the Office of the United Nations High Commissioner for Human Rights |
| | 1 | Principle 1 | • Relevance and impartiality of and equal access to official statistics |
| | 2 | Principle 2 | • Professional standards, principles and ethics of official statistics |
| | 3 | Principle 3 | • Accountability and transparency of official statistics |
| | 4 | Principle 4 | • Prevention of misuse of official statistics |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 5 | Principle 5 | • Sources of official statistics |
| | | 6 | Principle 6 | • Confidentiality of official statistics |
| | | 7 | Principle 7 | • Legislation concerning of official statistics |
| | | 8 | Principle 8 | • National coordination of official statistics |
| | | 9 | Principle 9 | • Use of international standards |
| | | 10 | Principle 10 | • International cooperation in statistics |
| | C | | **Legislative frameworks** | |
| | | 1 | Introduction | • Need for a legislative framework |
| | | 2 | Types of legislative frameworks | • Main national framework law and by-laws, such as regulations, decrees and orders |
| | | | | • Who decides what |
| | | 3 | Relationship between legislation in the field of statistics and other legislation | • Including conflicts regarding access to information and protection of individual data |
| | | 4 | Topics to be covered in a national law on official statistics | • Definition of official statistics, to be distinguished from administrative information |
| | | | | • Definition and delineation of producers of official statistics |
| | | | | • Principle of professional independence of organizations and organizational entities producing official statistics |
| | | | | • Role of the national statistical office as the main producer of official statistics and the coordinator of the system of official statistics |
| | | | | • Operational and strategic programming, focusing on existing and emerging user needs |
| | | | | • Mandate for data collection and access to administrative data and other data sources |
| | | | | • Principles and procedures for handling confidential statistical data |
| | | | | • Management of quality |
| | | | | • Principles for dissemination of official statistics to all relevant user groups; link to model act |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|

## IV. National statistical system

Chapter IV provides a description of the national statistical system and its governance, programmatic and coordination mechanisms and tools.

| | | | |
|---|---|---|---|
| A | | **Introduction** | |
| B | | **Structure of the national statistical system** | |
| | 1 | Delimitation of the national statistical system | |
| | 2 | Position and role of the central bank | |
| | 3 | Legal frameworks, obligations and restrictions | |
| C | | **Coordination of the national statistical system** | |
| | 1 | Why coordination? | |
| | 2 | Legal basis for coordination | |
| | 3 | Coordination mechanisms | • Standards and nomenclatures<br>• Coordination of questionnaires<br>• Rotation of staff<br>• National statistical programmes<br>• National statistical council<br>• Coordinated budgets |
| D | | **Role of the national statistical office and the chief statistician** | |
| E | | **National statistical council** | |
| | 1 | Role of the statistical council | |
| | 2 | Membership | |
| | 3 | Chairmanship | |
| | 4 | Secretariat | |
| | 5 | Agenda | |
| | 6 | Frequency of meetings | |
| | 7 | Advisory committees and ad hoc bodies | |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | F | | **Multiannual and annual planning and priority setting** | |
| | | 1 | Organization of planning activity within the national statistical system | • Role of the national statistical office as a coordinator<br>• Process for developing plans |
| | | 2 | Which types of plans? | • Strategic, multiannual, annual |
| | | 3 | Analysing user needs and balancing priorities | • User surveys<br>• Involvement of different actors and the statistical council |
| | | 4 | Content of the multiannual plan | • Strategic goals for the national statistical system in the next period<br>• Major development work to be undertaken.<br>• Which producers of which surveys?<br>• Legal basis; periodicity, dissemination |
| | | 5 | Content of the annual plan | • Changes in relation to multiannual plan regarding producers, surveys and development projects |
| | | 6 | Follow-up and reporting | • Who responsible for what in relation to follow-up and reporting |
| | | 7 | Authority to take decisions on plans | • Government, ministry, national statistical office, national statistical council |
| | G | | **Branding of official statistics** | • Mechanisms to ensure that the designation "official statistics" is only given to statistics that are in line with the Fundamental Principles of Official Statistics and national requirements |
| | H | | **Financing the national statistical system** | • Common, coordinated government budgets for official statistics or separate budgets for each producer |
| **V.** | **National statistical office** | | | |
| | | | Chapter V covers the key features of a national statistical office. | |
| | A | | **Introduction** | |
| | B | | **Vision and goals of the national statistical office** | • Analyse national and international trends and challenges<br>• Define and communicate vision, mission and strategic goals |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| C | | | **National statistical office as an organization** | |
| | 1 | | Administrative solution and financing of the national statistical office | • Reporting to which authority? An independent agency?<br>• Financing only through a government budget?<br>• Market prices for goods and services? |
| | 2 | | Chief statistician | • Qualifications<br>• Terms of office<br>• Appointment and dismissal<br>• Authority of the chief statistician |
| D | | | **Statistical business architecture** | |
| | 1 | | Definition of a statistical business architecture | • Activities undertaken by a statistical organization: conceptualize, design, build and maintain information<br>• Application assets used in the production of statistical outputs |
| | 2 | | Need for a statistical business architecture | • Driving the information, application and technology architectures for a statistical organization |
| | 3 | | Common Statistical Production Architecture | • Formally defined business architecture can reference Common Statistical Production Architecture<br>• Describes aspects of their business architecture in common with other producers of official statistics<br>• Enables sharing of components |
| | 4 | | Generic activity model for statistical organizations | • Introduction of GAMSO<br>• Position of business architecture in GAMSO |
| | 5 | | Definition of an integrated production system | • Harmonization and integration of statistical production processes<br>• Standards-based (GSBPM, Common Statistical Production Architecture, GSIM, SDMX)<br>• Modular information technology applications across statistical domains |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 6 | Importance of an integrated production system | • Evolving from a fragmented and silo approach towards an integrated systems approach for producing statistical outputs<br>• Governing the common statistical production process and centralized statistical services over time and across countries<br>• Cost-effectiveness<br>• Collaborating in the development and application of common methods and information technology tools<br>• Managing new developments through a robust, flexible and stable platform<br>• Centralized versus decentralized systems |
| | | 7 | Data-processing life cycle | • Relationship to GSBPM<br>• Data processing life cycle stages |
| | | 8 | Examples and best practices | |
| | E | | **Governance and leadership** | |
| | | 1 | Internal decision-making bodies | • Management committee supporting the chief statistician? Tasks and composition? |
| | | 2 | Internal communication and coordination | • Use of management committee or other coordinating bodies<br>• Relationship with trade unions<br>• Sharing of information and communication through the hierarchy and across the organizational structure<br>• Use of the intranet<br>• Development and communication of internal policies and decisions |
| | | 3 | Options for organizing the national statistical office | • Organization by subject or by function<br>• Stovepipe or process-oriented organization<br>• Number of divisions and levels<br>• Reorganization: how and when |
| | | 4 | Central office and regional network | • Division of tasks, relationship with other regional bodies; reorganizing regional networks |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 5 | Planning and monitoring within the national statistical office | • Development of multiannual and annual work programmes; analysis and balancing of user requirements; allocation of project and programme portfolio budgets; evaluation of plans and performance; follow-up |
| | F | | **Planning and development of capabilities** | |
| | | 1 | Capability management | • Managing human resources capabilities: overview of human resources capability management (summarize and refer to chapter on human resources management) |
| | | | | • Managing information technology capabilities: overview of information technology capability management (summarize and refer to chapter XIV) |
| | | 2 | Project management | |
| | G | | **Implementation of support capability** | |
| | | | Change management | • Define change management |
| | | | | • Change management models |
| | H | | **Monitoring of capabilities** | |
| | | | Risk management | • Define risk management |
| | | | | • Risk management principles |
| | I | | **Relevance to other producers of official statistics** | |
| **VI.** | **Users and their needs** | | | |
| | | | In this chapter, various groups of users of official statistics and their specific needs are detailed. | |
| | A | | **Introduction** | |
| | | 1 | Increased demand for statistics (Sustainable Development Goal context) | • Increased demand for data |
| | | | | • Increased expectations for data access: the age of the "digital native" |
| | | | | • Specific requirements for the Sustainable Development Goals |
| | | 2 | Analysis of user needs | • Strategy to assist in identifying and satisfying the needs of different users (public consultations, focus groups, etc.) |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | B | | **Needs of Government** | |
| | | 1 | General needs of Government | • Relationship between Government and the national statistical office |
| | | | | • Categories of government needs: regular and ad hoc |
| | | 2 | Ministries of finance | • Data requirements of ministry of finance |
| | | | | • Examples |
| | | 3 | Other ministries | • Data requirements of other ministries |
| | | | | • Examples |
| | | 4 | Organizing and establishing contacts | • Need for gathering information throughout the national statistical system |
| | | | | • Establishing links to experts in specialized ministries |
| | | | | • Establishing links to data in specialized ministries |
| | | 5 | Regional and local government | • Needs for gathering information in regional and local government |
| | | | | • Establishing links to experts in regional and local government |
| | | | | • Establishing links to data in regional and local government |
| | C | | **Needs of general public** | • Specific requirements of the general public |
| | | | | • Meeting the needs of the general public |
| | D | | **Needs of businesses** | |
| | | 1 | Large businesses | • Specific requirements of large businesses |
| | | | | • Meeting the needs of large businesses |
| | | 2 | Small businesses | • Specific requirements of small businesses |
| | | | | • Meeting the needs of small businesses |
| | E | | **Needs of education and academia** | • Specific requirements of schools, high schools and universities |
| | | | | • Meeting the needs of schools and high schools |
| | | | | • Meeting the needs of universities |
| | F | | **Needs of the media** | • Different types of media |
| | | | | • Specific requirements of the media |
| | | | | • Meeting the needs of the media |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | G | | **Needs of researchers** | • Specific requirements of researchers |
| | | | | • Meeting the needs of researchers |
| | H | | **Needs of international institutions** | • Specific requirements of international institutions (refer to chapter XVI) |
| | | | | • Meeting the needs of international institutions |
| | I | | **Needs associated with the Sustainable Development Goals** | • Specific requirements associated with the production and use of the Sustainable Development Goal indicators |
| | J | | **Relevance to other producers of official statistics** | • Other producers of official statistics |
| | | | | Meeting the needs of their users |

## VII. Quality management

Chapter VII describes developing and administering a statistical quality framework, including the use of user satisfaction surveys and the certification and labelling of official statistics.

| | | | | |
|---|---|---|---|---|
| | A | | **Introduction** | • Reasons for quality management |
| | | | | • Structure and content of the chapter |
| | | | | • General quality management systems |
| | | | | • Statistical quality management frameworks |
| | | | | • Promoting a culture that ensures quality |
| | B | | **General quality management systems** | |
| | | 1 | ISO 9000 series | • Total quality management concepts, principles and terminology |
| | | | | • Certification process |
| | | | | • Use by national statistical office |
| | | 2 | ISO 20252:2012 market, opinion and social research | • Scope, concepts and coverage |
| | | | | • Use by national statistical office |
| | | 3 | Six Sigma | • Scope, concepts and coverage |
| | | | | • Use by national statistical office |
| | | 4 | Lean | • Scope, concepts and coverage |
| | | | | • Use by national statistical office |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 5 | European Foundation for Quality Management | • Scope, concepts and coverage<br>• Use by national statistical office |
| | | 6 | Other general quality management systems | • Scope, concepts and coverage<br>• Use by national statistical office |
| | C | | **Statistical quality assurance frameworks** | |
| | | 1 | United Nations National Quality Assurance Framework | • Scope, concepts and coverage<br>• Use by national statistical office |
| | | 2 | European Statistics Code of Practice and Quality Assurance Framework of the European Statistical System | • Scope, concepts and coverage<br>• Use by national statistical office |
| | | 3 | International Monetary Fund Data Quality Assessment Framework | • Scope, concepts and coverage<br>• Use by national statistical office |
| | | 4 | Other statistical quality assurance frameworks | • Scope, concepts and coverage<br>• Use by national statistical office |
| | D | | **Developing a statistical quality framework** | |
| | | 1 | Defining the dimensions of statistical quality | • Output-quality dimensions<br>• Process-quality dimensions<br>• Institutional dimensions of quality<br>• Quality of national statistical system coordination |
| | | 2 | Creating and maintaining a culture that ensures and promotes statistical quality | • Promoting quality<br>• Quality training programme |
| | | 3 | Developing guidelines on statistical quality | • Process-oriented guidelines<br>• Process-oriented checklist<br>• Output-oriented checklist |
| | | 4 | Monitoring and control of statistical quality | • Defining quality and performance indicators<br>• Monitoring quality and performance indicators<br>• Defining and implementing quality gates (control points)<br>• Disseminating quality indicators |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 5 | Evaluating statistical quality | • Conducting a statistical quality review programme<br>• Defining and implementing quality improvements<br>• Disseminating main results to users |
| | | 6 | Certifying statistical quality | • Certifying official statistics on the basis of an evaluation of quality |
| | E | | **Implementation of a statistical quality framework** | |
| | | 1 | Need for a statistical quality assurance unit and a statistical quality assurance manager | • Some national statistical offices are too small to have a dedicated statistical quality assurance unit but need a designated statistical quality assurance manager |
| | | 2 | Need for a statistical quality assurance committee | • Need to ensure that results and recommendations from statistical quality reviews are implemented |
| | | 3 | Role of national statistical office staff | • Ensuring quality is everyone's business |
| | F | | **Relevance to other producers of official statistics** | • Dimensions of quality<br>• Statistical quality guidelines<br>• Statistical quality review programme<br>• Certification of official statistics |

## VIII. Data sources, collection and processing

Chapter VIII examines the collection and processing of data from various types of sources, including secondary and non-traditional.

| | | | | |
|---|---|---|---|---|
| | A | | **Introduction** | • Structure and contents of the chapter<br>• Sources: surveys, administrative sources, geospatial data sources, big data sources<br>• Statistical processes: surveys, administrative data-based processes, big data-based processes<br>• Modelling statistical processes with reference to GSBPM |
| | B | | **Surveys and censuses** | |
| | | 1 | Description of survey functions | • Phases and subprocesses constituting a survey<br>• Types of statistical units that can be subject to the survey |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 2 | Survey types | • Household surveys |
| | | | | • Business enterprise surveys |
| | | | | • Establishment surveys |
| | | | | • Price surveys |
| | | 3 | Data collection and capture modes | • Personal interview using paper questionnaire |
| | | | | • Self-completion using paper questionnaire |
| | | | | • Computer-assisted personal interview |
| | | | | • Computer-assisted telephone interview |
| | | | | • Self-completion using electronic questionnaire |
| | | | | • Machine-to-machine transfer |
| | | | | • Appropriate choice of mode |
| | | 4 | Survey design | • Frame and sample design |
| | | | | • Questionnaire design |
| | | | | • Editing and imputation |
| | | | | • Estimation |
| | | | | • Confidentiality preservation |
| | | | | • Seasonal adjustment |
| | | 5 | Respondent relations and communications | • Respondent policy and charter |
| | | | | • Managing key respondents, business profiling |
| | | | | • Minimizing response errors |
| | | | | • Minimizing non-response, follow-up procedures |
| | | | | • Use of the law to enforce response |
| | | | | • Measuring the response burden, individual and total |
| | | 6 | Processing survey and administrative data | • Point of collection editing |
| | | | | • Point of collection coding |
| | | | | • Primary editing |
| | | | | • Secondary editing |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | | | • Coding |
| | | | | • Imputation |
| | | | | • Outlier detection and treatment |
| | | | | • Macro-editing, namely, editing on the basis of a review of aggregated data |
| | | 7 | Designing integrated survey programmes | • Integrated suite of surveys |
| | | | | • Core survey vehicles and supplementary modules |
| | | | | • Flexible survey-taking capability |
| | | | | • Responding to urgent requests |
| | | 8 | Survey staff expertise | • Survey managers |
| | | | | • Subject matter specialists |
| | | | | • Methodologists |
| | | | | • Data collection and follow-up specialists |
| | | | | • Data capture, verification and editing process |
| | C | | **Administrative sources** | |
| | | 1 | Types of administrative data | • Taxation data |
| | | | | • Employment data |
| | | | | • Social Security data |
| | | | | • Foreign trade data |
| | | | | • Health data |
| | | | | • Justice data |
| | | | | • Corporation register and business licenses |
| | | | | • Other administrative sources |
| | | 2 | Working with administrative data providers | • Policy regarding administrative data providers |
| | | | | • Establishment of memorandum of understanding regarding flows of data and metadata and communications |
| | | | | • Early warning of impending change in administrative process |
| | | | | • Promotion of statistical standards |
| | | | | • Guidance on and supporting data quality |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 3 | Accessing administrative data | • Push method: administrative source sends data to national statistical office<br>• Pull method: national statistical office extracts data from administrative source database |
| | | 4 | Processing administrative data | • Recording a copy of the administrative data as originally obtained<br>• Transforming the administrative data to standard statistical format<br>• Editing and imputing the formatted data in the same way as for statistical survey survey data |
| | D | | **Geospatial data** | • Types of geospatial data<br>• Geostatistical frameworks for georeferencing data<br>• Examples of geospatial data being used in official statistics |
| | E | | **Big data** | |
| | | 1 | Types of big data | • Types of big data<br>• Categories of big data (phone logs, social media, sensor data, etc.) |
| | | 2 | Challenges and risks of using big data | • Challenges and risks in using big data (volume, quality, privacy, impermanence, technology, skills, etc.) |
| | | 3 | Developing relationships with big data providers | • Explaining statistical needs and standards |
| | | 4 | Accessing big data | • Challenges in accessing sources of big data (technical, legal, financial, etc.) |
| | | 5 | Processing big data | • Challenges in processing big data |
| | | 6 | Using big data in official statistics | • Examples of big data use in official statistics |
| | F | | **Relevance to other producers of official statistics** | • Data collection and capture procedures<br>• Data coding and editing procedures |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| **IX.** | | | **Analysis and analytical frameworks** | |
| | | | Chapter IX the extent to which data should be supplemented with analysis, and the frameworks and methods for doing so, are discussed. | |
| A | | | **Introduction** | • Reasons why a national statistical office performs analysis<br>• Structure and contents of the chapter |
| B | | | **Supplementing data with analysis** | |
| | 1 | | Facts and their interpretation | |
| | 2 | | Analytical functions and information | • Analysis by responsible subject matter area<br>• Analysis by dedicated analysis unit |
| | 3 | | Review of publications | • Review of data output<br>• Review of analytical output |
| C | | | **Methods and systems of analysis** | |
| | 1 | | Methods of analysis | • Regression and correlation<br>• Seasonal adjustment and time series<br>• Confidentiality rules and disclosure control<br>• Other |
| | 2 | | Systems of analysis | • Commercial off-the-shelf systems: SAS software, Statistical Package for the Social Sciences software, R statistical software<br>• In-house developed systems |
| D | | | **National accounts** | |
| | 1 | | Conceptual framework | • *System of National Accounts (SNA) 2008* |
| | 2 | | Organizational arrangements | • Location of national accountants<br>• Relationships with subject matter experts<br>• Relationships of national statistical office, central bank, ministry of finance |
| E | | | **Balance of payments** | |
| | 1 | | Conceptual framework | • *Balance of Payments and International Investment Position Manual*, sixth edition |
| | 2 | | Organizational arrangements | • Location of compilation<br>• Roles of national statistical office and central bank |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | F | | **Other analytical frameworks** | |
| | | 1 | Environmental account | • Conceptual framework<br>• Organizational arrangements |
| | | 2 | Labour account | • Conceptual framework<br>• Organizational arrangements |
| | | 3 | Other analytical frameworks | |
| | G | | **Relevance to other producers of official statistics** | • SNA 2008<br>• *Balance of Payments and International Investment Position Manual*, sixth edition<br>• Methods and systems of general analysis |

## X. Dissemination and user communication

Chapter X covers all aspects of data dissemination and user communication are reviewed. The chapter also covers dissemination policy, data types, dissemination platforms and recovering the costs of dissemination.

| | | | | |
|---|---|---|---|---|
| | A | | **Introduction** | |
| | B | | **Dissemination policy** | |
| | | 1 | Release schedule | • Importance of a release schedule<br>• Establishing a release schedule |
| | | 2 | Data availability | • Establishing a policy for data availability |
| | C | | **Providing information on the properties of statistical data (metadata)** | |
| | | 3 | Metadata management | • Access to metadata<br>• Providing documentation<br>• Metadata revisions<br>• Handling of errors |
| | D | | **Different data types for dissemination** | |
| | | 1 | Microdata | • List types of microdata<br>• Specific issues relating to disseminating microdata (technical, legal) |
| | | 2 | Macrodata | • List types of macrodata<br>• Specific issues relating to disseminating macrodata (technical, legal) |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | E | | **Dissemination by data portals** | |
| | | 1 | Importance of data portals | • Rise of data portals<br>• Importance of data portals in reducing reporting burdens and improving the quality of reporting data<br>• Selecting the appropriate data portal for a national statistical office<br>• Examples of data portals |
| | | 2 | National statistical office-specific data portals | • Examples of specific national statistical office data portals<br>• Pros and cons of specific national statistical office data portals |
| | | 3 | National statistical system data portals | • Needs for a common data portal across a national statistical system |
| | | 4 | Integrated reporting within a national statistical system | • Use of standards to integrate reporting within a national statistical system (SDMX, Common Statistical Production Architecture, etc.)<br>• Examples of integrated reporting in a national statistical system |
| | | 5 | Generic data portals | • Examples of generic data portals<br>• Pros and cons of generic data portals |
| | F | | **Dissemination using social media** | |
| | | 1 | Types of social media | • Rise of social media<br>• Types of social media (Facebook, Twitter, etc.) |
| | | 2 | Role of social media in dissemination | • Skills needed by a national statistical office to use social media<br>• Ways a national statistical office can use social media in the dissemination process |
| | G | | **Other forms of dissemination** | |
| | | 1 | Hard-copy dissemination | • Use of print publications<br>• Future of print publications |
| | | 2 | Multimedia dissemination | • Types of multimedia<br>• Use of multimedia in dissemination<br>• Future of multimedia for dissemination |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 3 | Machine-to-machine dissemination | • Growth of machine-to-machine data exchange<br>• Examples of machine-to-machine data exchange in dissemination |
| | | 4 | Mobile apps | • Examples of mobile apps for disseminating data |
| | H | | **Recovering dissemination costs** | |
| | | 1 | Free versus paid access | • Data access models (free, paid, hybrid)<br>• Current trends in data access policies |
| | | 2 | Role of data resellers | • Examples of data resellers<br>• Pros and cons of using data resellers |
| | | 3 | Copyright and royalties | • Types of copyright<br>• Legal implications of copyright and royalties<br>• Current trends in use of copyright |
| | I | | **User relations** | • Managing user relations in a national statistical office |
| | J | | **Other dissemination issues** | |
| | | 1 | Open data movement | • Evolution of the open data movement<br>• Impact of open data for national statistical offices |
| | | 2 | Moving to a modernized distributed digital system | • Traditional model (non-digital, centralized)<br>• Towards a distributed, modernized digital system |
| | | 3 | Statistical yearbook | • Requirements for a statistical yearbook<br>• Using data warehouses to disseminate statistical yearbook compilations |
| | K | | **Relevance to other producers of official statistics** | • Other producers of official statistics |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| **XI.** | **Common statistical infrastructure** | | | |
| | | | Chapter XI covers the statistical infrastructure required to support the statistical production programme, including the development of internal registers, methods, tools, systems and standards. | |
| | A | | **Introduction** | • Notion of statistical infrastructure methods and tools supporting statistical processes<br>• Structure and content of chapter<br>• Multipurpose registers<br>• Statistical methods and tools<br>• Policies, standards and guidelines |
| | B | | **Statistical business register** | |
| | | 1 | Roles and benefits of the statistical business register | • Source of survey frames<br>• Extension to include sample selection<br>• Source of demographic statistics<br>• Supports the harmonization and integration of economic and business statistics |
| | | 2 | Conceptual framework | • International standards: SNA 2008; ISIC, revision 4; resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians, January 1993<br>• Defining coverage and content |
| | | 3 | Administrative sources | • Identification of potential sources<br>• Selection of sources<br>• Prevention of duplication |
| | | 4 | Statistical sources | • Reasons for profiling: special treatment of large businesses<br>• Profiling procedures<br>• Feedback from surveys<br>• Need for statistical business register improvement surveys<br>• Conduct of improvement surveys |
| | | 5 | Generation of statistical business register snapshots and common frames | • Reasons for snapshots (frozen frames)<br>• Generation of common frames |

| Register | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 6 | Generation of survey frames and samples | • Specification of survey population<br>• Derivation of survey frames<br>• Selection of survey samples |
| | | 7 | Producing statistics from the statistical business register | • Statistical business register as a source of business demographics<br>• Limitations of statistical business register as a data source |
| | C | | **Statistical farm register** | |
| | | 1 | Roles and benefits of the farm register | • Source of agricultural survey frames<br>• Supports the harmonization and integration of agricultural statistics |
| | | 2 | Conceptual framework | • International standards<br>• Defining coverage and content |
| | | 3 | Creation and updating of sources and procedures | • Agricultural census<br>• Administrative sources<br>• Statistical sources |
| | | 4 | Generation of survey frames and samples | • Specification of survey population<br>• Derivation of survey frames<br>• Selection of survey samples |
| | D | | **Household address register** | |
| | | 1 | Roles and benefits of address register | • Replaces need for periodic area enumeration of households<br>• Provides frames for household surveys and population censuses |
| | | 2 | Conceptual framework | • International standards<br>• Defining coverage and content |
| | | 3 | Sources and maintenance procedures | • Administrative sources<br>• Statistical sources |
| | | 4 | Generation of household survey frames | • Specification of survey population<br>• Derivation of survey frames<br>• Selection of survey samples |
| | I | | **Household master sample** | |
| | | 1 | Roles and benefits of the address register | • Reduces need for area enumeration<br>• Provides frames for household surveys |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 2 | Conceptual framework | • International standards<br>• Defining coverage and content |
| | | 3 | Sources, creation and maintenance procedures | • Population census<br>• Selection of master frames<br>• Master frame area re-enumeration |
| | | 4 | Generation of survey frames and samples | • Specification of survey population<br>• Derivation of survey frames<br>• Selection of survey samples |
| | I | | **Methodological services** | |
| | | 1 | Confidentiality and disclosure control | • Legislated requirements regarding privacy and confidentiality<br>• Definition of disclosure<br>• Methods: suppression, perturbation<br>• Customized off-the-shelf systems<br>• Application of disclosure control |
| | | 2 | Questionnaire design | • Questionnaire design principles<br>• Questionnaire design tools<br>• Responsibility for questionnaire design |
| | | 3 | Sample design and estimation | • Sampling principles and methods<br>• Sample design tools<br>• Sample selection tools<br>• Estimation methods<br>• Responsibility for sample design and estimation |
| | | 4 | Editing, imputation and outlier determination | • Editing and outlier detection principles and methods<br>• Imputation principles and methods<br>• Editing, imputation and outlier determination tools<br>• Responsibility for editing, imputation and outlier determination |
| | | 5 | Seasonal adjustment and time series analysis | • Seasonal adjustment principles<br>• Seasonal adjustment tools<br>• Responsibility for seasonal adjustment |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | G | | **Statistical policies, standards and guidelines** | • Note: this section may be absorbed elsewhere — policies in chapter V, standards in chapter XI and guidelines in all the chapters |
| | | 1 | Statistical policies | • Need for corporate policies<br>• Development of corporate policies<br>• Monitoring and enforcing policies, governance procedures |
| | | 2 | Standard concepts, variables and classifications | • Benefits of standard concepts, variables and classifications<br>• Supports the harmonization and integration of statistics<br>• Cross reference to chapter XIII |
| | | 3 | Statistical guidelines | • Guidelines as a basis for training and support<br>• Development of guidelines<br>• Monitoring the use of guidelines |
| | | | **Application to other producers of official statistics** | • Form design<br>• Editing and outlier detection |

## XII. Human resources management and development

Chapter XII reflects changes in staff hiring, retention and training to cover the evolution of information technology, new data sources, standards of modernization and business architecture.

| | | | | |
|---|---|---|---|---|
| | A | | **Introduction** | |
| | B | | **Staff composition** | • Skills needed in a modern national statistical office<br>• Categories of staff |
| | C | | **Human resources policy** | • Defining a human resources policy for a national statistical office<br>• Elements of a human resources policy |
| | D | | **Recruitment** | • Defining a recruitment policy for a national statistical office |
| | E | | **Training** | • Importance of training for national statistical office staff<br>• Types of training (on-the-job, in-house, Internet, etc.) |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | F | | **Job rotation** | • Principles of job rotation<br>• Pros and cons of job rotation for a national statistical office |
| | G | | **Staff retention** | • Challenge of retaining staff<br>• Improving staff retention |
| | H | | **Options available to new chief statistician** | • Concerns and challenges facing a new chief statistician |
| | I | | **Human resources management: a policy package** | • Defining the elements of a human resources policy package |
| | J | | **Relevance to other producers of official statistics** | • Other producers of official statistics<br>• Implications of human resources management for other producers of official statistics |

## XIII. Data, information and knowledge management

Chapter XIII covers the ownership and custody of records, documents, data, information and other intellectual assets held by the national statistical office, and the policies, guidelines and standards for their collection, storage, maintenance, retrieval, dissemination and destruction.

| | | | | |
|---|---|---|---|---|
| | A | | **Introduction** | • Importance of managing information as a resource<br>• Statistical data as the core asset of a national statistical office needs special management<br>• Structure and content of the chapter<br>• General principles and policies<br>• Managing data and metadata<br>• Managing other information and knowledge |
| | B | | **General information management concepts, principles and policies** | • Concepts: relationships between data information and knowledge<br>• Policies for custody of records, documents, information and other intellectual assets<br>• Governance of information collection, arrangement, storage, maintenance, retrieval, dissemination and destruction |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | C | | **Managing statistical data and metadata** | • Statistical data and metadata management principles: single source of truth, need for discoverability, importance of reuse<br>• Developing a data and metadata management strategy<br>• Implementing a data and metadata management strategy |
| | D | | **Managing other information and knowledge** | • Developing an information and knowledge management strategy<br>• Implementing an information and knowledge management strategy |
| | E | | **Relevance to other producers of official statistics** | • Statistical data and metadata management principles<br>• Developing and implementing a data and metadata management strategy |
| **XIV.** | **Information technology management** | | | |
| | | | Chapter XIV reflects recent advances in technology, including cloud technology, the use of smartphones and tablet computers, big data, data-visualization techniques, new methods of data collection and dissemination and data integration. | |
| | A | | **Introduction** | |
| | B | | **Review of changes since previous edition, current trends** | |
| | | 1 | User expectations | • User expectations for information technology services in a national statistical office |
| | | 2 | Changes in ways of working | • Increase in collaboration between organizations working on projects and sharing software<br>• Organizations develop less and less software for their own use and seek more tools available from the international statistics community (Common Statistical Production Architecture, SDMX Toolkit, OECD.Stat) |
| | | 3 | Increase in the use of the Internet | • Implications for national statistical offices of increased Internet use<br>• "Internet of things" |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 4 | Cloud technology | • Increase in the use of cloud technology<br>• Pros and cons of cloud technology for a national statistical office<br>• Examples of the use of cloud technology by national statistical offices |
| | | 5 | Smartphones and tablet computers | • Increase in the use of smartphones and tablet computers<br>• Implications for national statistical offices of smartphones and tablet computers<br>• Examples of using smartphones and tablet computers by national statistical offices |
| | | 6 | Data-visualization software | • Importance of data visualization<br>• Types of data visualization<br>• Increase in the use of data visualization by national statistical offices<br>• Examples of data visualization by national statistical offices |
| | | 7 | Big data | • Growth of big data (refer to chapter VIII)<br>• Implications of big data for the information technology infrastructure and skill requirements of a national statistical office |
| | | 8 | Open data initiatives | • Growth of the open data movement (refer to chapter VIII)<br>• Implications of open data for the information technology infrastructure and skill requirements of a national statistical office |
| | | 9 | Open-source software | • Growth of open-source software<br>• Examples of open-source software relevant to a national statistical office |
| | | 10 | New methods of dissemination, for example, machine-to-machine, and Internet services | • List new methods of dissemination<br>• Implications of new dissemination methods for a national statistical office information technology infrastructure and skill requirements |
| | | 11 | Linked data | • Growth of linked data<br>• Uses of linked data for a national statistical office |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | | | • Data-linking frameworks |
| | | | | • Requirements and strategies for linking data |
| | | | | • Examples of linked data |
| | | 12 | Common Statistical Production Architecture | • Growth in the use of Common Statistical Production Architecture |
| | | | | • Advantages of Common Statistical Production Architecture for a national statistical office |
| | | | | • List of software available through Common Statistical Production Architecture inventory |
| | | | | • Examples of Common Statistical Production Architecture usage by national statistical offices |
| | | 13 | Data integration and data linkage | • Importance of data integration and data linkage for a national statistical office |
| | | | | • Examples of data integration and data linkage |
| | | 14 | Enterprise architecture | • Adoption of enterprise architecture |
| | | 15 | Artificial intelligence | • Artificial intelligence |
| | | 16 | Data science | • Data science technologies |
| | | 17 | Data security | • Importance of data security |
| | C | | **Models of information technology management** | |
| | | 1 | In-house development | • Software development and maintenance determined internally |
| | | | | • Autonomy of development and integration |
| | | | | • Pros and cons |
| | | | | • Statistics software as a niche market |
| | | 2 | Outsourced development | • Customize external software to meet organization needs |
| | | | | • Pros and cons |
| | | | | • Risks of outsourcing |
| | | | | • Implications for confidentiality |
| | | | | • Vendor incentives |
| | | | | • Vendor expertise versus in-house knowledge |
| | | | | • Ensuring transparent and ethical relationship |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| | | 3 | Collaborative approach | • Mix of internal and shareable software: Common Statistical Production Architecture approach |
| | D | | **Other current information technology issues** | • Constantly evolving information technology environment<br>• Monitoring new products<br>• New and emerging technologies<br>• Learning from the experiences of others<br>• Need to assess risks |
| | E | | **Use of standards and generic models** | |
| | | 1 | Need for standards in the industrialization of statistical processing | • Importance of standards<br>• Using standards for modernization and transformation<br>• Examples of standards used in modernization and transformation projects |
| | | 2 | Generic Activity Model for Statistical Organizations | • Refer to chapter V<br>• Manage information technology assets and services<br>• Manage information technology security<br>• Manage technological change |
| | | 3 | Generic Statistical Business Process Model | • GSBPM as a conceptual model<br>• GSBPM main processes and subprocesses<br>• Using GSBPM in a statistical organization |
| | | 4 | Generic Statistical Information Model | • GSIM as a conceptual model<br>• Using GSIM in a statistical organization |
| | | 5 | Common Statistical Production Architecture | • Using Common Statistical Production Architecture to share statistical components |
| | | 6 | Statistical Data and Metadata Exchange | • SDMX as a standard for statistical data and metadata exchange<br>• Technical standards (supporting platforms, file formats, Internet services and application programming interfaces)<br>• SDMX and the Sustainable Development Goals<br>• Examples of SDMX implementation in national statistical offices |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 7 | Data Documentation Initiative | • Data Documentation Initiative as a standard for microdata exchange<br>• Examples of Data Documentation Initiative implementation in national statistical offices |
| | F | | **Basic information technology infrastructure needs and skill requirements** | |
| | | 1 | Databases and data warehouses | • Importance of databases in a national statistical office information technology infrastructure<br>• Examples of databases and data warehouses |
| | | 2 | Specialist statistical-processing and analytical software | • List of specialist statistical processing and analytical software |
| | | 3 | Dissemination tools | • List of dissemination software |
| | | 4 | Other skills | • Data visualization<br>• Cloud services<br>• Artificial intelligence<br>• Data science |
| | | 5 | Self-assessment of information technology infrastructure and needs | • Link to information technology infrastructure self-assessment |
| | G | | **Relevance to other producers of official statistics** | • Other producers of official statistics<br>• Implications in information technology management for other producers of official statistics |

## XV. Management of finance, buildings and physical space

Chapter XV covers management issues of a more operational nature not reflected elsewhere in the *Handbook*.

| | | |
|---|---|---|
| A | **Managing environmental, mechanical and electrical needs** | • Ways to manage environmental, mechanical and electrical needs |
| B | **Managing the arrangement of office space** | • Ways to manage the arrangement of office space |
| C | **Managing the distribution of offices within a space** | • Ways to manage the distribution of offices within space |
| D | **Building security** | • Ways to manage building security |
| E | **Managing finance** | • Ways to manage finance |

| Chapter | Section | Subsection | Description | Comments |
|---|---|---|---|---|
| **XVI. International activities and collaboration** | | | | |
| | | | Chapter XVI covers international organizations, cooperation and relations, as well as international standards and requirements. | |
| | A | | **Importance of international standards and requirements** | |
| | | 1 | International standards and frameworks | • Sustainable Development Goal indicators<br>• Other standards and frameworks |
| | B | | **Coordination of international cooperation at the national level** | • Separate unit responsible for international cooperation<br>• Tasks |
| | C | | **International actors and bodies in the field of statistics** | |
| | | 1 | Organizations of the United Nations system | • Statistics Division of the Department of Economic and Social Affairs of the Secretariat<br>• Regional commissions<br>• United Nations Secretariat<br>• Specialized agencies of the United Nations system |
| | | 2 | Organization for Economic Cooperation and Development | |
| | | 3 | International Monetary Fund | |
| | | 4 | European Union and Eurostat | |
| | | 5 | Other non-United Nations regional organizations | For example:<br>• African Union, Commonwealth of Independent States, Caribbean Community, Cooperation Council for the Arab States of the Gulf, Pacific Community |
| | D | | **International professional organizations** | |
| | | 1 | International Statistical Institute | • Including associations and the International Association for Official Statistics |
| | E | | **International development cooperation** | |
| | | 1 | Importance of statistical development cooperation | |

| *Chapter* | *Section* | *Subsection* | *Description* | *Comments* |
|---|---|---|---|---|
| | | 2 | Actors in the field of development cooperation | • PARIS21, World Bank, regional development banks, United Nations Development Programme and those mentioned above |
| | F | | **Relevance to other producers of official statistics** | |

**Annexes**

**I. Reference documents**

**II. Glossary**

**III. Possible organizational structures**

*Abbreviations*: GAMSO, Generic Activity Model for Statistical Organizations; GSBPM, Generic Statistical Business Process Model; GSIM, Generic Statistical Information Model; ISIC, International Standard Industrial Classification of All Economic Activities; ISO, International Organization for Standardization; OECD, Organization for Economic Cooperation and Development; PARIS21, Partnership in Statistics for Development in the 21st Century; SDMX, Statistical Data and Metadata Exchange.